UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte THOMAS SCOTT GEE

Appeal No. 2005-0245
Application No. 09/848,032

ON BRIEF

Before GARRIS, KRATZ, and TIMM, *Administrative Patent Judges.*

TIMM, *Administrative Patent Judge.*

DECISION ON APPEAL

This appeal involves claims 15-18, which are all of the claims pending in this application.

We have jurisdiction over the appeal pursuant to 35 U.S.C. § 134.

INTRODUCTION

The claims are rejected under 35 U.S.C. § 103(a). As evidence of unpatentability, the Examiner relies upon the following prior art references:

Gopp et al. (Gopp)	5,555,871	Sep. 17, 1996
Kitada et al. (Kitada)[1]	JP 6-48,189	Feb. 22, 1994

The specific rejection maintained by the Examiner is as follows:

Claims 15-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kitada in view of Gopp.

Appellant states that all the claims stand or fall together (Brief, p. 3). We select claim 15 to represent the issues on appeal. Claim 15 reads as follows:

> 15. A hybird electric vehicle (HEV) comprising:
> an internal combustion engine;
> an electric traction motor;
> a storage battery for furnishing power to the traction motor;
> an engine temperature sensor;
> a battery state of charge indicator;
> a vehicle system controller (VSC) for receiving a temperature signal from the engine temperature sensor and a state of charge signal from the battery state of charge indicator;
> and
> an engine control unit operated by the VSC, with the engine control unit being directed to operate the engine in a fail-safe mode in the event that the engine temperature exceeds a predetermined temperature threshold, with said engine controller halting the engine and powering the vehicle solely with the traction motor if the battery state of charge is greater than a predetermined charge threshold, and with said engine controller operating the engine on alternating cylinders in the event

[1]We rely upon and cite to the English translation of record.

that the engine temperature exceeds the predetermined temperature threshold and the battery state of charge is less than said predetermined charge threshold.

We affirm and in so doing we incorporate by reference the findings of fact and conclusions of law articulated by the Examiner in the Answer (Answer, pp. 3-5).[2] We add the following for emphasis.

OPINION

The claims are directed to a hybrid electric vehicle and a process for operating it. There is no dispute here that the hybrid electric vehicle taught by Kitada includes the internal combustion engine, electric traction motor, battery, temperature sensor, charge indicator, vehicle system controller and engine control unit required by claim 15 (Compare Brief, pp. 3-4 with Answer, pp. 3-5). There is further no dispute that Kitada describes one of the two control conditions required by the claim, i.e., shutting down an overheating engine and, if there is sufficient battery charge, powering the vehicle using the electric traction motor (*Id.*). The question, thus, is whether it would have been obvious to one of ordinary skill in the art to modify the apparatus and process of Kitada so as to include the second control condition of the claims, i.e., operating the overheating engine on alternating cylinders when the battery charge is insufficient to power the motor, or, in other words, when the battery is dead. The Examiner cites

[2]In the first paragraph of the rejection, the phrase on lines 5-7, should read: "powering the vehicle solely with the traction motor if the battery state of charge is greater than a predetermined *charge* threshold." As the correction is readily apparent from the context of the sentence and the next sentence and from Kitada, the error is harmless.

Gopp as evidence that it was known in the art to control an internal combustion engine such that, upon overheating, the engine is powered by alternating cylinders and concludes, based on the evidence provided by Gopp, that the modification of the hybrid electric vehicle of Kitada would have been obvious to one of ordinary skill in the art (Answer, pp. 3-4).

Appellant argues that the Examiner has engaged in hindsight reconstruction of the invention by plucking from Gopp the idea of running an engine on alternating cylinders (Brief, p. 4). This, according to Appellant, is because Kitada teaches shutting down the engine if the battery is dead and while Gopp describes operating an overheating engine on alternating cylinders, Gopp makes no reference to a hybrid vehicle having both electric and internal combustion engine propulsion (*Id.*).

Appellant's argument is not convincing because it concentrates on what each reference teaches separately without considering what the combination would have suggested to one of ordinary skill in the art. *See In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981)(The claimed invention need not be expressly suggested in any one or all of the references, rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art.). As pointed out by the Examiner, the problem of overheating is a problem with the internal combustion engine component of the hybrid vehicle (Answer, pp. 4-5). Those of ordinary skill in the art would have looked to solutions to problems with internal combustion engines in the art related to internal combustion engines. Gopp provides a solution: power the engine with alternating cylinders so that the engine can be cooled by drawing fresh air

through the deactivated cylinders. The benefit of incorporating this solution into the hybrid vehicle of Kitada would have been readily apparent to one of ordinary skill in the art as it would allow the hybrid electric vehicle to operate even when it is overheating and the battery is dead. The Examiner has established that there was a reason, suggestion, or motivation to make the combination which was grounded in the prior art. Such evidence shows that the rejection is not based upon improper hindsight reconstruction.

The contentions of Appellant do not persuade us of reversible error in the Examiner's position. We conclude that the Examiner has established a *prima facie* case of obviousness with respect to the subject matter of claims 15-18 which has not been sufficiently rebutted by Appellant.

CONCLUSION

To summarize, the decision of the Examiner to reject claims 15-18 under 35 U.S.C. § 103 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

BRADLEY R. GARRIS
Administrative Patent Judge

PETER F. KRATZ
Administrative Patent Judge

CATHERINE TIMM
Administrative Patent Judge

) BOARD OF PATENT
) APPEALS
) AND
) INTERFERENCES

CT/jrg

DYKEMA GOSSETT PLLC
2723 SOUTH STATE STREET
SUITE 400
ANN ARBOR, MI 48104